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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,464	09/25/2003	Ju-Yup Kim	030681-571	4566

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BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER
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WEINER, LAURA S

ART UNIT	PAPER NUMBER
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1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/669,464

Applicant(s)

KIM ET AL.

Examiner

Laura S. Weiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 8, 10-20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 7, 10-13, 15, 16, 18, 19 and 22 is/are rejected.
- 7) ☒ Claim(s) 2, 5, 14 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Species A, Formula 3, specifically a dimethyl malonate and the inorganic solvent comprising a mixture of diglyme, dimethoxyethane and 1,3-dioxolane in the reply filed on 9-15-06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Applicants had elected the solvent to comprise dimethyl malonate and a mixture of diglyme, dimethoxyethane and 1,3-dioxolane. This has been found allowable. In addition the solvent comprising dimethyl malonate and a) diglyme or b) dimethoxyethane or c) 1,3-dioxolane which was cited in claims 7-8 in which each was dependent on claim 6 which was dependent on claim 1 has also been found allowable. These claims were found allowable because the combination was not found.
3. The claims have been amended therefore it has been found that an electrolytic solution comprising formula (3) and the organic solvents listed in claim 1 have also been found allowable.
4. The new species searched was an electrolytic solution comprising formula (1) (an acetate) and diglyme (diethyleneglycol dimethylether) or triglyme (triethyleneglycol dimethylether).

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5. Claims 8 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9-15-06.

***Response to Arguments***

6. Applicant's arguments and amendment to the claims have been considered but are moot in view of the new ground(s) of rejection. The rejection of claims 1, 3, 5-6, 9-11, 13, 15, 17-18, 21-22 under 35 U.S.C. 102(b) as being anticipated by JP 54-75534, (abstract) or JP 54-75535 (abstract) has been withdrawn. The rejection of claims 1-3, 5-6, 9-15, 17-18, 21-22 under 35 U.S.C. 102(b) as being anticipated by Matsui et al. (JP 08-096849, abstract and translation) has been withdrawn. The rejection of claims 1-3, 5-6, 9-15, 17-18, 21-22 under 35 U.S.C. 102(b) as being anticipated by Shiga et al. (JP 2000-223153, abstract and translation) has been withdrawn. The rejection of claims 1, 3, 5-6, 9-13, 15, 17-18, 21-22 under 35 U.S.C. 102(b) as being anticipated by Lee-Doo et al. (JP 11-135148, abstract and translation) has been withdrawn. The rejection of claims 1-3, 5-6, 9-15, 17-18, 21-22 under 35 U.S.C. 102(a) as being anticipated by Shizuka et al. (JP 2002-367673, abstract and translation) has been withdrawn.

***Claim Rejections - 35 USC § 112***

7. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 is rejected because the claim depends from claim 6 which has been cancelled. This makes the claim vague and indefinite.

***Claim Rejections - 35 USC § 103***

8. Claims 1, 3-4, 7, 10-13, 15-16, 19, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (5,580,683).

Takeuchi et al. teaches an electrochemical cell comprising an alkali metal-aluminum alloy anode, a mixed metal oxide cathode and a nonaqueous electrolytic solution. Takeuchi et al. teaches in column 8, line 56 to column 9, line 9, that the nonaqueous solvents suitable for the present invention are chosen so as to exhibit those physical properties necessary for ionic transport (low viscosity, low surface tension and wettability). Suitable solvents may be any one or more of the organic solvents which are substantially inert to the anode and cathode electrode materials such as methyl acetate ( $\text{CH}_3\text{-O-C(=O)-CH}_3$ , dimethyl acetate), diglyme, triglyme, 1, 2-dimethoxyethane, etc. Takeuchi et al. teaches in column 10, Example I, that 1 M  $\text{LiAsF}_6$  was present. Takeuchi et al. teaches in column 8, lines 29-55, that the separator provides separation to the anode and cathode. Takeuchi et al. teaches in

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column 5, lines 28-67, that the cathode comprises a metal oxide, a metal sulfide, a mixed metal oxide, etc. and teaches in lines 1-26, that the anode comprises a thin metal sheet or foil of the anode metal such as lithium.

Takeuchi et al. teaches the claimed invention as explained above but does not specifically teach that methyl acetate ( $\text{CH}_3\text{-O-C(=O)-CH}_3$ , dimethyl acetate) and diglyme or triglyme is present in the solvent. Takeuchi et al. teaches that any one or more of the organic solvents which are substantially inert to the anode and cathode electrode materials can be used.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use both solvents dimethyl acetate and diglyme or triglyme in the electrolyte solvent taught by Takeuchi et al. because it is prima facie obvious to combine two compositions each of which is taught by prior art to be useful for the same purpose in order to form a third composition that is to be used for the very same purpose. See *In re Kerkhoven*, 205 USPQ 1069; *In re Susi*, 169 USPQ 423.

***Allowable Subject Matter***

9. Claims 2, 5, 14, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

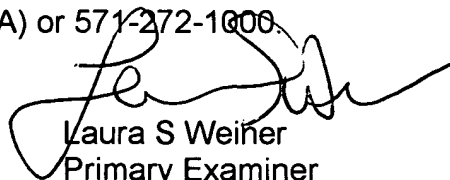
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S. Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Laura S Weiner  
Primary Examiner  
Art Unit 1745

March 5, 2007